west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-2644A
Plant ID No.:	029-00010
Applicant:	Resco Products, Inc.
Facility Name:	New Cumberland Operations
Location:	New Cumberland, Hancock County
SIC Code:	3251
Application Type:	Modification (AFTER-THE-FACT)
Received Date:	June 17, 2011
Engineer Assigned:	Mindy Hendrickson
Fee Amount:	$2,000.00
Date Received:	June 23, 2011
Complete Date:	August 4, 2011
Applicant Ad Date:	June 14, 2011
Newspaper:	*Hancock County Courier*
UTM's:	Easting: 532.16397 km Northing: 4485.53295 km Zone: 17
Description:	After-the-Fact modification to include the installation and operation of one (1) baghouse, two (2) conveyors, one (1) hammer mill, one (1) hopper and bulk loading station, and the replacement of one (1) jaw crusher.

DESCRIPTION OF PROCESS

Resco, New Cumberland Operations, is a refractory material crushing and classifying facility. The facility supplies raw materials to other Resco facilities. Greater than 90% of the material handled consists of Bauxite, which is a naturally occurring form of aluminum oxide. Facility modifications contained within this application/permit occurred in 2009. A new baghouse was installed, and it controls particulate emissions from a replaced jaw crusher, a new hammer mill, and associated conveying transfer points. Vented to an existing cartridge filter, a new hopper and bulk bag loading station attached to the existing Sweco Screens was installed.

Main Plant – Raw material is transported from the raw material storage area via dump trucks and loaded to an external conveyor at the main plant. The conveyor transports the material inside the main plant to the Barmac Crusher. Once crushed, the material is transported by conveyor to three single deck screens. The material is screened and the sized material is loaded into a product bin, dumped onto a conveyor, and then loaded into a bulk truck or bulk tote bag for shipment. Off-spec material is recycled and conveyed back to the Barmac crusher for processing. On rare occasions, the Sweco Screens are used along with the hopper and bulk bagging station for packaging.

Crushing Plant – Recycled brick is loaded using a front end loader into the jaw crusher. Crushed material is then conveyed to the Hammer Mill and conveyed to a hopper and loaded into dump trucks for transfer to the main plant.

The following table summarizes design capacities and control devices for the equipment used by Resco in the New Cumberland Operations:

Table 1 - Source List

Emission Unit ID	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
1s	1e	Barmac Crusher	1984	66 tons/hr	Cartridge Filter (1c)
2s	1e	Single Deck Screen	1964	66 tons/hr	Cartridge Filter (1c)
2s	1e	Single Deck Screen	1964	66 tons/hr	Cartridge Filter (1c)
2s	1e	Single Deck Screen	1964	66 tons/hr	Cartridge Filter (1c)
3s	1e	Nine (9) Conveyor Transfer Points (for Conveyors 1, 2A, 2B, 3, 4, 5, 5A, 9, and 10)	See Comments Below*	66 tons/hr	Cartridge Filter (1c)
3s	2e	Five (5) Conveyor Transfer Points (for Conveyors 6, 7, 8, and 11)	1964	12 tons/hr	Cartridge Filter (2c)
4s	2e	Sweco Screen No. 1	2000	12 tons/hr	Cartridge Filter (2c)
4s	2e	Sweco Screen No. 2	2000	12 tons/hr	Cartridge Filter (2c)
4s	2e	Scale	1984	50 tons/hr	Cartridge Filter (2c)
4s	2e	Hopper Mill and Bulk Bag Loading Station	2009	50 tons/hr	Cartridge Filter (2c)
5s	3e	Jaw Crusher	2009	60 tons/hr	Baghouse (4c)
6s	3e	Munson Mixer	2006	3 tons/hr	Baghouse (2c)
7s	3e	Packaging Operation	2006	3 tons/hr	Baghouse (2c)
8s	Fugitive	Raw Material Transport Operations	Plant Inception	14 loads/day	
9s	Fugitive	Storage Piles	Plant Inception	33,000 tons/yr	
10s	4e	Hammer Mill	2009	10 tons/hr	Baghouse (3c)
11s	3e	One (1) Conveyor Transfer Point (for second transfer point of Conveyor 13)	2009	10 tons/hr	Baghouse (3c)
11s	4e	Three (3) Conveyor Transfer Points (for Conveyors 12, 14, and first transfer point of Conveyor 13)	2009	10 tons/hr	Baghouse (4c)

*Conveyor 2A installed in 1984, Conveyor 2B installed in 2002, Conveyors 3,4, and 5 installed in 1964, Conveyor 5A installed in 2003, and Conveyor 9 and 10 installed in 1952**.**

SITE INSPECTION

Resco's New Cumberland facility was last inspected on March 29, 2011 by Al Carducci of the Division of Air Quality's Northern Panhandle enforcement group. As a result of this site inspection, Mr. Carducci advised Resco Products, Inc. To submit an application for the replaced and new equipment. All other aspects of the permit/facility were in compliance.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Main Plant

Particulate emission factors for PM and PM10 from the Barmac Crusher are obtained from AP-42, Table 11.24-2 for secondary crushing of low moisture metallic minerals. Emissions factors for the screens are obtained from AP-42, Table 11.19.2-2 for crushed stone processing for screening. A control efficiency of 99.95% for the cartridge filter is provided by the manufacturer. All emissions are based on 8,760 annual operation hours.

Table 2: Potential Controlled Emissions of Main Plant

Main Plant Source	Potential PM Emissions		Potential PM_{10} Emissions	
	Hourly (lbs/hr)	Annual (tons/yr)	Hourly (lbs/hr)	Annual (tons/yr)
Barmac Crusher	0.0066	0.029	0.00066	0.0029
Single Deck Screens	0.00082	0.0036	0.00029	0.0013
Conveyors	0.385	1.64	0.385	1.64
Sweco Screens	0.00077	0.00336	0.000272	0.00118
Scale	0.027	0.12	0.027	0.12
Hopper and Bulk Bag Loading	0.000005	0.000022	0.000005	0.000022
Total (Main Plant)	**0.43**	**1.80**	**0.42**	**1.77**

Crushing Plant

Particulate emission factors for PM and PM_{10} for the Jaw Crusher and Hammer Mill are obtained from AP-42, Section 11.3 Brick and Structural Clay Manufacturing, Table 11-3.1. Particulate emission factors for PM and PM_{10} for the Munson Mixer, Packaging System, and Conveyors are obtained from Section 11.9.2, Crushed Stone Processing, Table 11.19.2-2, Emission Factors for Crushed Stone Processing Operations for Screening. A control efficiency of 99.95% for the bagfilter is provided by the manufacturer.

Estimated throughput for the mixer and packaging system is based on the 2004 throughput of the Sweco Screens (4s). Approximately 25% of the material processed at the screens will be processed in the mixer and packaging system.

Table 3: Potential Controlled Emissions of Crushing Plant

Crushing Plant Source	Potential PM Emissions		Potential PM_{10} Emissions	
	Hourly (lbs/hr)	Annual (tons/yr)	Hourly (lbs/hr)	Annual (tons/yr)
Jaw Crusher	0.035	0.16	0.035	0.16
Munson Mixer	0.0000045	0.00002	0.0000016	0.0000072
Packaging System	0.0000045	0.00002	0.0000016	0.0000072
Hammer Mill	0.0059	0.026	0.0059	0.026
Conveyors	0.00006	0.000266	0.0000215	0.000096
Total (Crushing Plant)	**0.05**	**0.19**	**0.05**	**0.19**

Fugitive Emissions

Emissions from unpaved industrial haulroads are calculated using the equation from AP-42 Section 13.2.2 Unpaved Haulroads. The silt content value and mean number of days with 0.01 inch or more of precipitation were obtained from 13.2.2-1 from AP-42. Slag will be used on the haulroads as a means to control emissions. The control efficiency for slag used is 40%. This is the mean number obtained from *Overview of Fugitive Dust Emissions* by Mary Hewitt Daly and Jennifer Franco of the May 2000 issue of Air Currents magazine published by Malcolm Pirnie.

Emissions from the storage piles are estimated using Equation (1) from AP-42 Section 13.2.4 Aggregate Handling and Storage Piles. The emissions are dependent on the average wind speed and the material moisture content. The average wind speed in Pittsburgh, Pennsylvania is 9.1 miles per hour, according to the Tanks meteorological database. Pittsburgh is the nearest city to New Cumberland listed in the database.

Table 4: Potential Controlled Fugitve Emissions

Fugitive Emissions Source	Potential PM Emissions		Potential PM_{10} Emissions	
	Hourly (lbs/hr)	Annual (tons/yr)	Hourly (lbs/hr)	Annual (tons/yr)
Unpaved Haulroads	14.2	52	3.8	17
Storage Piles	0.38	1.7	.0178	0.78
Total (Fugitives)	**14.58**	**53.7**	**3.82**	**17.78**

FACILITY-WIDE EMISSIONS SUMMARY

Table 5: Previously Controlled Emissions Summary (items permitted in 13-2644)

Source	Potential Controlled PM Emissions		Potential Controlled PM10 Emissions	
	(lbs/hr)	(tons/yr)	(lbs/hr)	(tons/yr)
Main Plant	0.25	1.08	0.25	1.08
Crushing Plant	0.0033	0.014	0.0028	0.012
Sub-Total	***0.2533***	***1.094***	***0.2528***	***1.092***
Fugitives	0.0023	21	0.00065	5.7
Total	**0.2556**	**22.094**	**0.25345**	**6.792**

Table 6: Proposed Controlled Emissions Summary (13-2644A application)

Source	Potential Controlled PM Emissions		Potential Controlled PM10 Emissions	
	(lbs/hr)	(tons/yr)	(lbs/hr)	(tons/yr)
Main Plant	0.43	1.80	0.42	1.77
Crushing Plant	0.05	0.19	0.05	0.19
Sub-Total	***0.48***	***1.99***	***0.47***	***1.96***
Fugitives	14.58	53.7	3.82	17.78
Total	**15.06**	**55.69**	**4.29**	**19.74**

REGULATORY APPLICABILITY

The following state and federal regulations are applicable to the subject facility:

45CSR7 - *"To prevent and control particulate air pollution from manufacturing process operations."*

The proposed facility has the potential to emit particulate matter during routine process operations. Therefore, the provisions of this rule are applicable to the proposed facility. The facility is a type 'a' emission source, as defined in 45CSR7-2.39. According to Table 45-7A, the maximum throughput rate of 66 tons per hour results in a maximum allowable PM emission rate from any single point source of 34.28 pounds per hour. The emissions of this facility will remain well below such a limit.

45CSR13 - *"Permits for construction, modification, relocation and operation of stationary sources of air pollutants, notification requirements, temporary permits, general permits, and procedures for evaluation."*

The facility will demonstrate compliance by following all the applicable rules and regulations that apply to the facility. They will also follow the terms and conditions set forth in permit R13-2644A. The permittee published their Class I legal ad on June 14, 2011 in the Hancock County Courier and they submitted an application fee of $2,000.00 to the DAQ. Because the facility is not subject to any NSPS, the $1,000 NSPS portion of the application fee will be refunded.

The facility is NOT subject to the following state and federal regulations:

40 CFR 60, Subpart LL - *"Standards of Performance for Metallic Mineral Processing Plants."*

This regulation is not applicable because the facility does not concentrate the metallic minerals processed at the facility. The majority of materials handled is bauxite. Bauxite is a naturally occurring form of aluminum oxide. The facility also handles "recycled brick", which is comprised mainly of magnesium oxide, zirconium oxide, and chrome alumina iron oxide. Processing at this facility is limited to sizing operations only and does not include the production of metallic mineral concentrates. Therefore, it does not meet the definition of a "metallic mineral processing plant"**,** as defined in section 60.381 of Title 40.

40 CFR 60, Subpart OOO - *"Standards of Performance for Nonmetallic Mineral Processing Plants."*

The materials handled at this facility are not included in the definition of "nonmetallic minerals" listed in section 60.671 of Title 40.

45CSR16 - *"Standards of performance for new stationary sources pursuant to 40 CFR Part 60."*

The facility is not subject to 40 CFR 60, and, therefore, is not subject to 45CSR16.

45CSR17 - *"To prevent and control particulate matter air pollution from materials handling, preparation, storage and other sources of fugitive particulate matter."*

The facility is subject to 45CSR7. Therefore, according to 45-17.6, it is exempt from 45CSR17.

45CSR30 - *"Requirements for operating permits."*

The proposed facility is not subject to an NSPS, and it emits less than 100 tons per year of all regulated pollutants. Therefore, the facility is not a Title V source.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

A toxicity analysis was not performed because the pollutants being emitted from this facility are particulate matter (PM) and PM10, which are non-toxic pollutants.

AIR QUALITY IMPACT ANALYSIS

The proposed construction associated with this application does not constitute a major source as defined in 45CSR14. As a result, no air quality impact analysis was required.

MONITORING OF OPERATIONS

For the purpose of determining compliance with the throughput limits set forth under Section 4.1.2. and 4.1.3. of permit R13-2644A, the permittee shall monitor the daily material throughput from truck delivery. The facility shall perform visible emission checks and opacity readings as specified in Permit R13-2644A. Example forms are included as Appendices A and B to permit R13-2644. Such records shall be retained on site by the permittee for at least five (5) years and shall be made available to the Director of the Division of Air Quality or his/her duly authorized representative upon request.

CHANGES TO PERMIT 13-2644

The following equipment was added: hammer mill, hopper and bulk loading station, baghouse, and two (2) convyeors. The jaw crusher was replaced. Crushing plant throughputs limitations were added. Emission limits for main plant and crushing plant were added to permit.

RECOMMENDATION TO DIRECTOR

The information contained in this after-the-fact modification application indicates that compliance with all applicable regulations should be achieved when all proposed particulate matter control methods are in operation. Due to the nature of the process and control methods proposed, adverse impacts on the surrounding area should be minimized.

Mindy Hendrickson
Permit Engineer

October 7, 2011

Date